

**REMARKS**

This Amendment is being filed with a Request for Continued Examination. This application has been carefully reviewed in light of the Advisory Action mailed April 13, 2007 ("Advisory Action") and the Final Office Action mailed January 31, 2007 ("Office Action"). Claims 1-5, 9, 10, 14-18, 22, 23 and 27-31 are pending in the application. The Examiner rejects Claims 1-5, 9, 10, 14-18, 22, 23 and 27-31. To advance prosecution of this case, Applicant amends Claims 1, 9, 10, 14, 17, 18, 22, 23, and 31. Applicant does not admit that any amendments are necessary due to any prior art or any of the Examiner's rejections. Applicant respectfully requests reconsideration and allowance of all pending claims.

**Section 112 Rejections**

The Examiner rejects Claims 1, 9, 14, 22, and 31 under 35 U.S.C. § 112, second paragraph. Applicant traverses this rejection. In the Office Action, the Examiner states that Claims 1, 9, 14, 22, and 31 are indefinite because a portion of Applicant's Specification states: "It should be noted that a database that supports SQL may not supply a subtraction operator." (Office Action; page 2). The Examiner, however, fails to explain how this statement renders Claims 1, 9, 14, 22, and 31 indefinite. Notably, these claims make no mention of "subtraction" or of a "subtraction operator."

Applicants note that the Specification is consistent with Claim 1. When read as a whole, the Specification teaches that a database may or may not supply a subtraction operator. In particular, the Specification describes embodiments for databases that supply a subtraction operator as well as embodiments for databases that do not supply a subtraction operator. For example, the Specification states:

In order to process (or evaluate) a subtraction, the method according to the present application: collects all positive terms in a list; collects all negative terms into another list; and then subtracts the positive term list and the negative term list whilst ignoring duplicates.

**An alternative to the subtraction process noted above** is to collect all negative terms in a list, and in the process of collecting all positive terms in another list, only keep terms that are not in the negative list. As a result, this positive list will have the subtracted results.

(Specification; page 9, line 20 – page 10, line 6) (emphasis added).<sup>1</sup> Thus, the Specification describes a subtraction process as well as an “alternative to the subtraction process.” The Specification therefore describes embodiments for databases that supply a subtraction operator as well as embodiments for databases that do not supply a subtraction operator. Because Claims 1, 9, 14, 22, and 31 are definite and adequately supported by the Specification, these claims satisfy the requirements of 35 U.S.C. § 112. Accordingly, Applicant respectfully requests reconsideration and allowance of Claims 1, 9, 14, 22, and 31.

### **Section 101 Rejections**

The Examiner rejects Claims 1-5, 9-10, 14-18, 22-23 and 27-31 under 35 U.S.C. § 101 as being directed to non-statutory subject matter. Applicant respectfully disagrees.

The patent laws define patentable subject matter as “any new and useful process, machine, manufacture or composition of matter, or any new and useful improvement thereto.” See 35 U.S.C. § 101. When an abstract idea is reduced to a practical application, the abstract idea no longer stands alone if the practical application of the abstract idea produces a useful, concrete, and tangible result. This then satisfies the requirements of 35 U.S.C. § 101. See *In re Alappat*, 33 F.3d 1526, 1544, 31 U.S.P.Q. 2d 1545, 1557 (Fed. Cir. 1994); see also *State Street Bank & Trust Co. v. Signature Financial Group, Inc.*, 149 F.3d 1368, 1373, 47 U.S.P.Q. 2d 1596, 1601-02 (Fed. Cir. 1998). While an abstract idea by itself may not satisfy the requirements of 35 U.S.C. § 101, an abstract idea when practically applied to produce a useful, concrete, and tangible result satisfies 35 U.S.C. § 101. See *AT&T Corp. v. Excel Comm. Inc.*, 172 F.3d 1352, 1357, 50 U.S.P.Q. 1447, 1452 (Fed. Cir. 1999) (stating that as technology progressed, the CCPA overturned some of the earlier limiting principles regarding 35 U.S.C. § 101 and announced more expansive principles formulated with computer technology in mind); see also *In re Musgrave*, 431 F.2d 882, 167 U.S.P.Q. 280 (CCPA 1970) (cited by the Federal Circuit in *AT&T Corp.*, 172 F.3d at 1356). Thus, producing a useful, concrete, and tangible result is the key to patentability according to *State Street* and other applicable case law.

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<sup>1</sup> By citing this portion of the Specification, which illustrates alternative embodiments, Applicant does not intend to limit the pending claims to any particular embodiment.

“Only when the claim is devoid of any limitation to a practical application in the technological arts should it be rejected under 35 U.S.C. 101.” MPEP § 2106. Indeed, a method or process remains statutory even if some or all of the steps therein can be performed in the human mind, with the aid of the human mind, or because it may be necessary for one performing the method or process to think. *See In re Musgrave*, 431 F.2d at 893, 167 U.S.P.Q. at 289. As stated by the Federal Circuit in *State Street* and as explicitly confirmed in the MPEP, “[T]ransformation of data, representing discrete dollar amounts, by a machine through a series of mathematical calculations into a final share price, constitutes a practical application of a mathematical algorithm, formula, or calculation, because it produces ‘a useful, concrete, and tangible result’ -- a final share price momentarily fixed for recording and reporting purposes and even accepted and relied upon by regulatory authorities and in subsequent trades.” *State Street*, 149 F.3d at 1373, 47 U.S.P.Q. 2d at 1601-02; MPEP § 2106. Applicant respectfully submits that Claims 1-5, 9-10, 14-18, 22-23 and 27-31 each recite a useful, concrete, and tangible result.

As one example, amended Claim 22 is directed to a “system for processing a directory service query.” In particular, amended Claim 22 recites that the system comprises:

- a database that is operable to store arbitrary data; and
- a processor that is communicatively coupled to the database and is operable to process a directory service query by:
  - obtaining a sum of terms by expanding at least one nested term into one or more un-nested terms,
  - mapping the sum of terms to a plurality of SQL instructions, wherein the sum of terms comprises one or more positive terms and one or more negative terms,
  - determining a plurality of results associated with the sum of terms, wherein the determination comprises:
    - collecting, into a first list, results associated with the one or more negative terms, and
    - collecting, into a second list, results associated with the one or more positive terms while omitting from the second list any results that are in the first list,
    - and
    - providing one or more results from the second list to a user.

Thus, amended Claim 22 is directed, at least in part, to processing “a directory service query by...mapping the sum of terms to...SQL instructions...and providing one or more results...to a user.” This is at least one practical application that produces a useful, concrete, and tangible result. Accordingly, amended Claim 22 satisfies the requirements of 35 U.S.C.

§ 101. For analogous reasons, Claims 1-5, 9-10, 14-18, 23 and 27-31 also satisfy the requirements of 35 U.S.C. § 101. Accordingly, Applicants respectfully request reconsideration and allowance of Claims 1-5, 9-10, 14-18, 22-23 and 27-31.

### **Section 103 Rejections**

The Examiner rejects Claims 1-5, 9-10, 14-18, 22-23 and 27-31 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,356,892 B1 issued to Corn, et al. ("*Corn*"), in view of U.S. Patent No. 6,112,198 issued to Lohman, et al. ("*Lohman*"), and in view of U.S. Patent No. 5,412,804 issued to Krishna ("*Krishna*"). Applicant traverses this rejection and respectfully requests reconsideration and allowance of Claims 1-5, 9-10, 14-18, 22-23 and 27-31.

The cited references fail to support the rejection for at least two reasons. First, the *Corn-Lohman* combination is improper because the proposed combination would render *Corn* unsatisfactory for its intended purpose. Second, the cited references fail to teach, suggest, or disclose that the "determination comprises...collecting, into a first list, results associated with the one or more negative terms, and collecting, into a second list, results associated with the one or more positive terms" as recited in amended Claim 1.

At the outset, the *Corn-Lohman* combination is improper because the proposed combination would render *Corn* unsatisfactory for its intended purpose. If a "proposed modification would render the prior invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification." MPEP § 2143.01. A "primary object" of *Corn* is to search a relational database to retrieve "target entries that exactly match given search criteria." (*Corn*; col. 2., ll. 32-38). Accordingly, *Corn* describes a method for mapping an LDAP search query into an SQL query. (*Corn*; col. 2, ll. 51-54). To formulate the SQL query, the method in *Corn* must generate "unique entry identifier (EID) sets." (*Corn*; col. 3, ll. 1-20). "Each LDAP entry is assigned a unique identifier (EID)" and the EIDs are stored in an "Entry Table" and an "Attribute Table." (*Corn*; col. 5, ll. 59-65; col. 6, ll. 16-22). The "Entry Table" stores each EID with entry data, and the "Attribute Table" stores each EID with attribute values. (*Corn*; col. 5, ll. 58-67; col. 6, ll. 16-22). *Corn* formulates SQL queries by incorporating terms associated with EIDs. In particular, *Corn* requires that the EID sets be "merged together,

preferably into a single SQL query.” (*Corn*; col. 7, ll. 42-44). For example, *Corn* presents the following SQL query:

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SELECT entry.EntryData, FROM LDAP_ENTRY as entry WHERE
entry.EID in (SELECT distinct LDAP_ENTRY.EID FROM
LDAP_ENTRY.ldap_desc WHERE (LDAP_ENTRY.EID=ldap_desc.DEID
AND ldap_desc.AEID=<id>) AND LDAP_ENTRY.EID NOT IN ((SELECT
EID FROM f1 where f1=' v1'))).
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(*Corn*; col. 11, ll. 10-20) (emphases added). Notably, this SQL query comprises numerous terms associated with EIDs. Therefore, to retrieve data using this query, *Corn* must search the EIDs associated with LDAP entries.

In contrast to *Corn*, the method in *Lohman* does not generate or store EIDs for each LDAP entry. Rather, *Lohman* describes a method for separating a query into “subtasks” and dividing a database into multiple “partitions.” (*Lohman*; col. 2, ll. 53-60). *Lohman* then applies each subtask to an individual partition of the database. (*Lohman*; col. 2, ll. 53-60). Combining *Corn* with *Lohman* would result in applying queries associated with EIDs to a database without EIDs. A query or subquery for particular EIDs, as described in *Corn*, will simply not return results from a database that does not comprise any EIDs, as described in *Lohman*. Thus, the proposed combination would render *Corn* inoperable and therefore unsatisfactory for its intended purpose of retrieving “target entries that exactly match given search criteria.” (*Corn*; col. 2, ll. 32-38). Because the proposed combination would render *Corn* unsatisfactory for its intended purpose, the combination is improper. As a result, Applicant respectfully requests that the Examiner withdraw the *Corn-Lohman* combination.

Second, the cited references fail to teach, suggest, or disclose that the “determination comprises...collecting, into a first list, results associated with the one or more negative terms, and collecting, into a second list, results associated with the one or more positive terms” as recited in amended Claim 1. In the Response dated August 25, 2006, Applicant showed that the cited references fail to teach, suggest, or disclose the foregoing aspect of Claim 1. In the ensuing Office Action, however, the Examiner failed to respond to Applicant’s argument. (Office Action; page 17). Accordingly, Applicant repeats this argument herein for the Examiner’s consideration.

The Examiner seems to rely on *Corn* for the foregoing aspect of amended Claim 1. (Office Action; page 5). *Corn* teaches a method for re-writing LDAP queries as SQL queries.

(Abstract). The cited portion of *Corn* describes merging sets of EIDs into an SQL query. (Column 7, lines 39-58). In particular, the cited portion of *Corn* states:

As described above, according to the inventive method, for each LDAP filter element or sub-expression, there is a set of entries (EIDs) that will satisfy the element. Thus, each element generally maps to a set of EIDs. The EID sets are then merged together, preferably into a single SQL query, using a set of combination rules. Thus, if a pair of LDAP filter elements are subject to an LDAP logical OR operator, the corresponding EID sets are merged using an SQL UNION logical operator. If a pair of LDAP filter elements are subject to an LDAP logical AND operator, the corresponding EID sets are merged using an SQL INTERSECT logical operator. If a pair of LDAP filter elements are subject to an LDAP logical NOT operator, the corresponding EID sets are merged using an SQL NOT IN logical operator. As will also be seen, these combination rules are applied recursively such that all LDAP elements associated with a particular logical operator are processed into the SQL query. This recursive processing facilitates handling of even complicated LDAP queries having numerous layers of logical depth.

(Column 7, lines 39-58). Thus, *Corn* describes merging sets of EIDs “using a set of combination rules.” This portion of *Corn*, however, does not teach, suggest, or disclose “results associated with the one or more negative terms” or “results associated with the one or more positive terms” as recited in amended Claim 1. In addition, merely merging sets of EIDs, as described in *Corn*, does not teach, suggest, or disclose “collecting, *into a first list*, results associated with the one or more negative terms, and collecting, *into a second list*, results associated with the one or more positive terms” as recited in amended Claim 1. (Emphases added). Because the cited references fail to teach, suggest, or disclose this aspect of amended Claim 1, the cited references fail to support the rejection. For at least the foregoing reasons, Applicant respectfully requests reconsideration and allowance of amended Claim 1.

In rejecting Claims 9, 14, 22, and 31, the Examiner employs the same rational used to reject Claim 1. Accordingly, for analogous reasons to those stated above with respect to amended Claim 1, Applicant respectfully requests reconsideration and allowance of amended Claims 9, 14, 22, and 31.

Claims 2-5, 10, 15-18, 23, and 27-30 depend from independent claims shown above to be allowable. In addition, these claims recite further elements that are not taught, suggested, or disclosed by the cited references. For at least these reasons, Applicant respectfully requests reconsideration and allowance of Claims 2-5, 10, 13-18, 23, and 27-30.

**CONCLUSION**

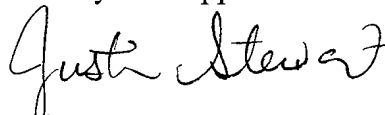
Applicant has made an earnest attempt to place this case in condition for allowance. For the foregoing reasons and for other reasons clearly apparent, Applicant respectfully requests reconsideration and full allowance of all pending claims.

If there are matters that can be discussed by telephone to further the prosecution of this Application, Applicant invites the Examiner to call the undersigned attorney at (214) 953-6755 at the Examiner's convenience.

Although no fees are believed due, the Commissioner is hereby authorized to charge any fees or credit any overpayments to Deposit Account No. 02-0384 of Baker Botts L.L.P.

Respectfully submitted,

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